



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,569	08/31/2001	Gustavo D. Leizerovich	CM03387J	2495

24273 7590 11/03/2005

MOTOROLA, INC
INTELLECTUAL PROPERTY SECTION
LAW DEPT
8000 WEST SUNRISE BLVD
FT LAUDERDAL, FL 33322

EXAMINER

WIN, AUNG T

ART UNIT	PAPER NUMBER
----------	--------------

2645

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/944,569	LEIZEROVICH ET AL.	
	Examiner	Art Unit	
	Aung T. Win	2645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1 & 7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites comparing step in Line 7-8 and Claim 7 recites comparing means in Line 9-10 in which comparing is accomplished by an actual signal to be transmitted by the RFPA with an expected signal at a point in the transmitter **prior to** the RFPA in which the actual signal occurs prior to the RFPA. Examiner can not find such support from the specification or the drawing. Also, examiner believe that one skill in the art is not able to make or use of the claimed invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 7, 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "substantially" recited in Claim 1, Line 5 and further recited in Claim 7, Line 7. The term "substantially" is a relative term, which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The limitation "autonomous correspondence" recited in Claim 13, Line 9 is confusing to the examiner. The term "autonomous" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention i.e., how does a modulated signal corresponds to an envelop of the signal to be transmitted.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 2, 4, 5, 7, 8, 10, 11,13, 14, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Su.

Regarding Claim 7, Su discloses a transmitter [Figure 3] for optimizing a supply modulation comprising: a radio frequency power amplifier (Output Stage 43) [Column 4,

Art Unit: 2645

Line 53] for amplifying a low level RF signal and providing an amplified RF signal; a power supply (Class D Amplifier 37) for providing power to the radio frequency power amplifier [Column 3, Line 25-28] in correspondence with a modulation signal (output modulated digital signal from the Quantizer 36 which receives the output signal of the difference detector 35) [Column 6, Line 1-11] supplied to the power supply; a means (Quantizer 36) for generating an envelope of a signal (RF output signal) to be transmitted and providing the modulation signal to the power supply [Figure 3], the modulation signal corresponding to the envelope of the signal to be transmitted; and a means (the difference detector 35) [Column 5, Line 27-30] for comparing an actual signal (output of envelope detector 34) to be transmitted with an expected signal (output of envelope detector 33) at some point in the transmitter; wherein the modulation signal is adjusted in response to detecting a deviation of the actual signal to be transmitted from the expected signal (the digital modulation signal is generated in response to the output difference detector 35 and threshold level) [Column 6, Line 23-29].

Claim 1 which is the method claim corresponding to Claim 1 is rejected for the same reasons as stated above because the claimed steps read on the corresponding means on Claim 7.

Regarding Claim 8, Su further discloses means for linearizing the signal to be transmitted (Feedback loop 32) [Column 5, Line 35-54].

Claim 2 which is the method claim corresponding to Claims 8 is rejected for the same reasons as stated above because the claimed steps read on the corresponding means on Claim 8.

Regarding Claim 10, Su discloses that means for comparing compares reference baseband signals (output of envelope detector 33) with summed baseband signals (output of envelope detector 34) in the transmitter [Column 5, Line 27-30] [Figure1].

Claim 4 which is the method claim corresponding to Claim 10 is rejected for the same reasons as stated above because the claimed steps read on the corresponding means on Claim 10.

Regarding Claim 11, Su discloses that the means for comparing compares a low level RF signal (output of envelope detector 33) with an amplified RF signal (output of envelope detector 34) at the input and output, respectively, of the RFPA [Column 5, Line 27-30] [Figure1].

Claim 5 which is the method claim corresponding to Claim 11 is rejected for the same reasons as stated above because the claimed steps read on the corresponding means on Claim 11.

Regarding Claim 13, Su discloses a method of modulating a supply voltage supplied to a radio frequency power amplifier (method for providing an efficient highly linear RF power amplifier implementing with Class D Amplifier 37 for providing power to the Output Stage 43) [Column 3, Line 25-28] [Column 4, Line 53] [Figure 3] in a transmitter, comprising: providing a signal to be transmitted (RF output signal), the signal having an envelope; providing a modulation signal (output voltage signal from the Quantizer 36) [Column 6, Line 1-11] to a power regulator (Class D Amplifier 37) for providing the supply voltage, the modulation signal corresponding to the envelope of the signal to be transmitted [See Figure 3]; and adjusting the modulation signal to avoid excess gain compression at a gain stage of the transmitter (adjusting the modulation signal in response to whether the output of the envelope detector 34 is greater than or less than that of the envelope detector 33 [Column 6, Line 23-29] to generate linearly-amplified [Column 3, Line 65-67], the amount of current demanded by the phase output stage 43 [Column 5, Line 15-16]).

Regarding Claim 14, Su further discloses a method for linearizing the signal to be transmitted (Feedback loop 32) [Column 5, Line 35-54].

Regarding Claim 16, Su discloses a method of comparing which comprises comparing reference baseband signals (output of envelope detector 33) with summed baseband signals (output of envelope detector 34) in the transmitter [Column 5, Line 27-30] [Figure1].

Regarding Claim 17, Su discloses a method of comparing which comprises comparing a low level RF signal (output of envelope detector 33) with an amplified RF signal (output of envelope detector 34) at the input and output, respectively, of the RFPA [Column 5, Line 27-30] [Figure1].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3, 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Su in view of Gailus as disclosed by the applicant.

Regarding Claim 9, Su discloses all the limitations in Claim 8 except for the teaching that means for linearizing comprises Cartesian feedback.

Gailus discloses the Cartesian feedback transmitter [Figure 1] implemented with first and second feedback paths 14 and 15 for the transmitter to operate in a satisfactory linear mode [Column 1, Line 10-15]. Also, Gailus further teaches that using the Cartesian feedback transmitter will optimize the baseband signal levels for linear transmitter.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Su's feedback loop 32 with the Cartesian feedback as taught by Gailus for achieving proper loop phase adjustment and optimized baseband signal levels [Column 1, Line 36-40].

Claim 3 which is the method claim corresponding to Claim 9 is rejected for the same reasons as stated above because the claimed steps read on the corresponding means on Claim 9.

Regarding Claim 15, Su discloses all the limitations in Claim 14 except for the teaching that the method for linearizing comprises Cartesian feedback.

Gailus discloses the method of maintaining linear operation of Cartesian feedback transmitter [Figure 1] implemented with first and second feedback paths 14 and 15 for the transmitter to operate in a satisfactory linear mode [Column 1, Line 10-15]

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the feedback loop 32 as taught by Su with the Cartesian feedback as taught by Gailus for linearizing the signal to be transmitted. One of the ordinary skilled in the art would have been motivated to do this to assure proper loop phase adjustment and optimized baseband signal levels [Column 1, Line 36-40].

3. Claims 6, 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Su in view of Williams.

Regarding Claim 12, Su discloses all the limitations in Claim 7 except for the teaching that comparing means comprises digital signal processor.

Williams discloses the apparatus and method for efficiently implementing a satellite transceiver system comprises digital signal processor 438 for comparing the input signals and the result signals to generate correction signals [Column 7, Line 50-52]. Moreover, one of the ordinary skilled in the art realizes that digital signal processors are designed and widely utilized specifically for the types of operations required in digital signal processing.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the comparing means disclosed by Su with the digital signal processor as taught by Williams for comparing an actual signal to be transmitted with an expected signal. One of the ordinary skilled in the art would have been motivated to do this to carry out such processing faster.

Claims 6 and 18 are the method claims corresponding to Claim 12 are rejected for the same reasons as stated above because the claimed steps read on the corresponding means on Claim 12.

Response to Arguments

Applicant's arguments filed on July 21, 2005 have been fully considered but they are not persuasive. The applicant contends that the output of either envelope detector is not an "expected signal" because the expected signal as claimed by applicant does not actually exist in the transmitter. However, it is noted that the features upon which applicant relies (i.e., the expected signal does not actually exist in the transmitter) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2645

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Khan et al	Patent No.:	6,445,249 B1
Leizerovich	Patent No.:	6,353,359 B1
Huang et al.	Patent No.:	5,574,994
Makikallio et al.	Patent No.:	5,697,074
Midya et al.	Patent No.:	6,141,541

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aung T. Win whose telephone number is (571) 272-7549. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (571) 272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2645

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aung T. Win
Group Art Unit 2645
October 31, 2005



FAN TSANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600